

Abstract

Underwater power generation for an underwater vessel is provided when the vessel transits through an underwater thermocline. At least a portion of the shell of the vessel is made from a thermally conductive material. Thermo-to-electric energy converters are electrically coupled together with each converter having a first surface thermally coupled to the shell's inner surface. A phase change material is thermally coupled to each opposing second surface of the converters. The phase change material has a phase change temperature that is between the upper and lower temperature extremes of the underwater thermocline's temperature range. The converters generate electrical power as the underwater vessel transits through the underwater thermocline.